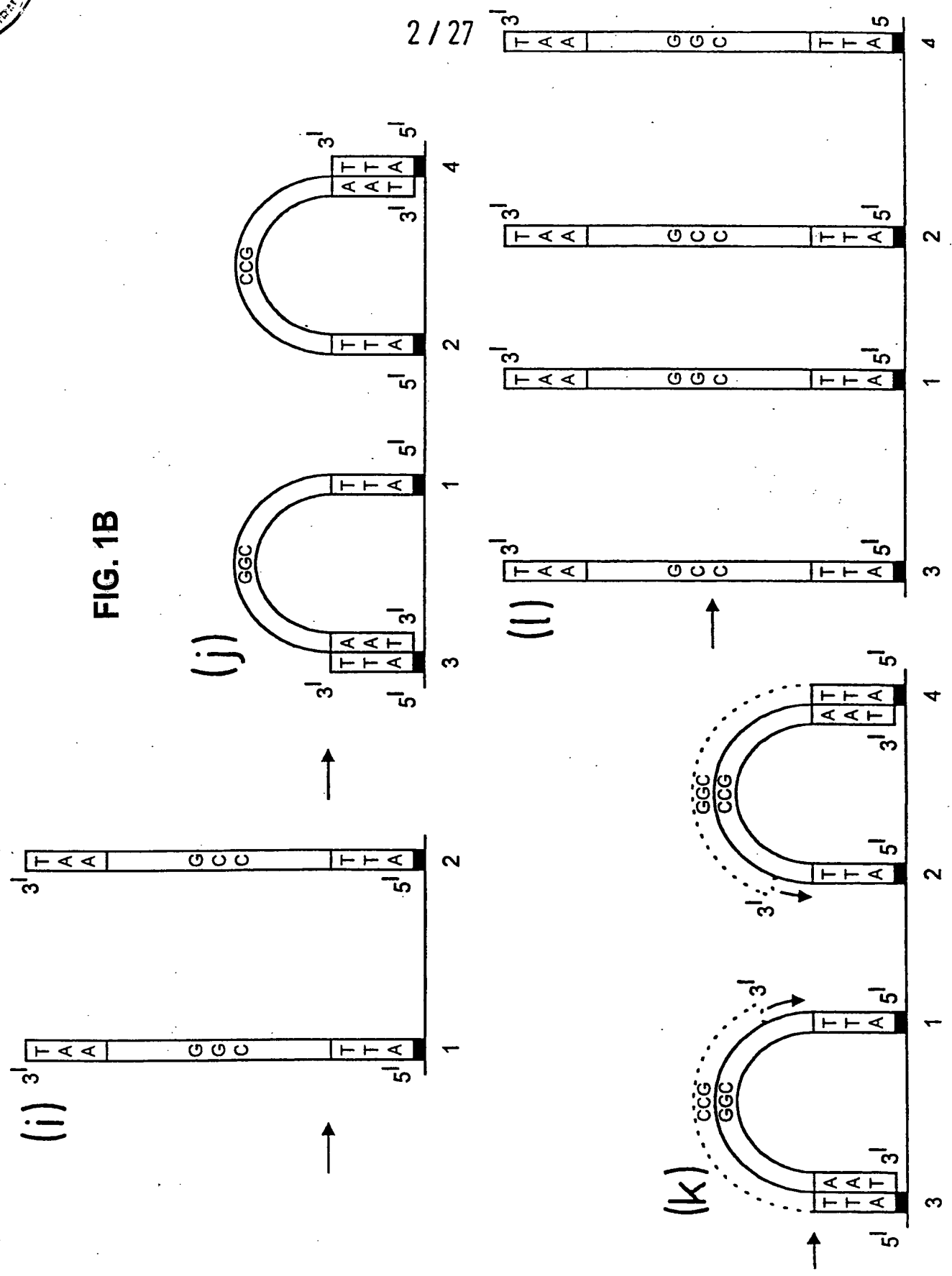


FIG. 1A

2 / 27

FIG. 1B



3/27

666667 422060

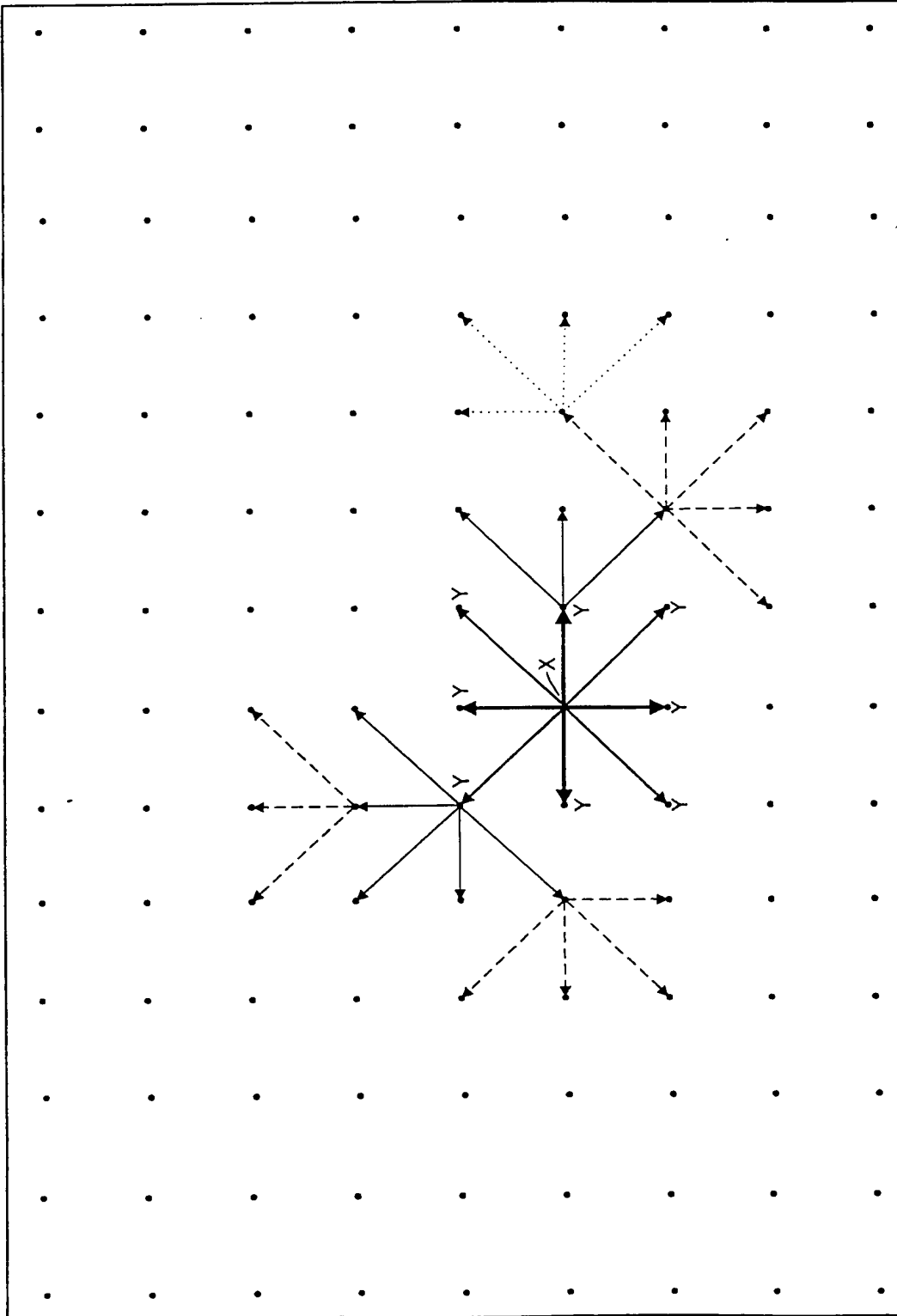
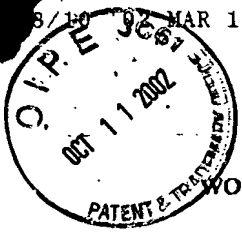


FIG. 2 SHOWS SCHEMATIC VIEW OF COLONY GROWTH

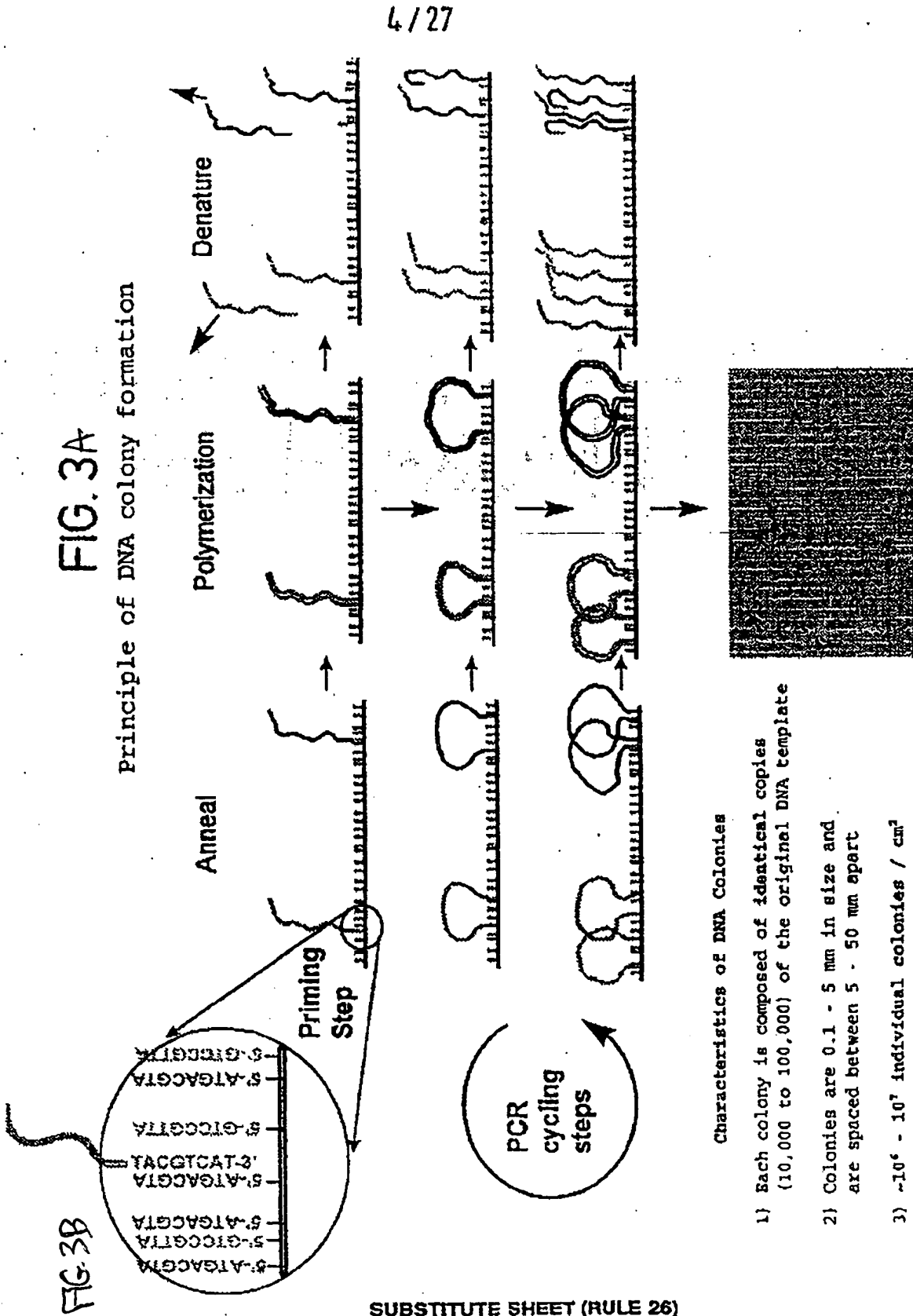


WO 98/44151

PCT/GB98/00961

FIG. 3A

Principle of DNA colony formation



4/27

Characteristics of DNA Colonies

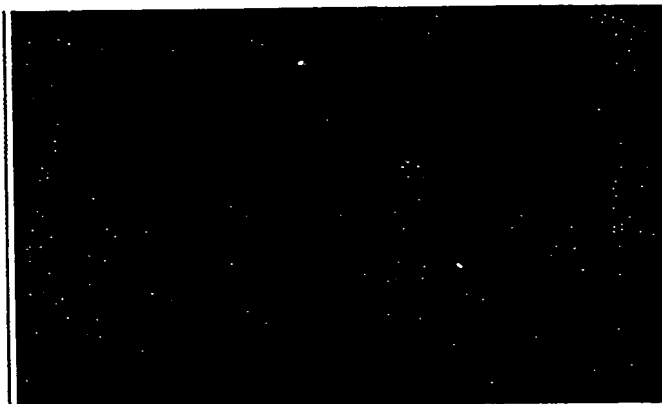
- 1) Each colony is composed of identical copies (10,000 to 100,000) of the original DNA template
- 2) Colonies are 0.1 - 5 mm in size and are spaced between 5 - 50 mm apart
- 3) $10^6 - 10^7$ individual colonies / cm^2

FIG. 3B

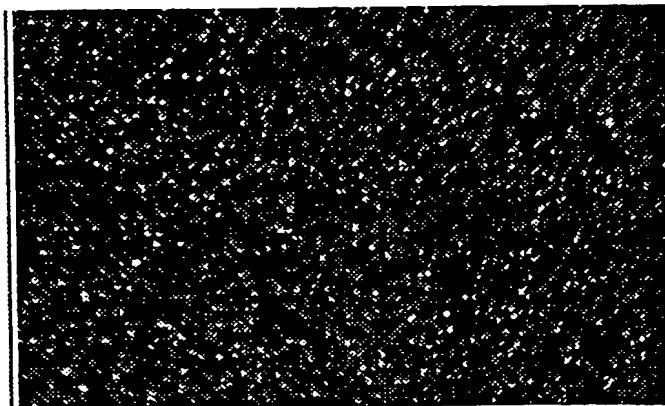
5 / 27

FIG. 4

Colony generation on tubes functionalised with oligonucleotide p57 (control). Results of visualisation of fluorescent microspheres. Hybridisation with probe detects 0.10 fmol/tube.

**FIG. 5**

Colony generation on tubes functionalised with oligonucleotide p58. Results of visualisation of fluorescent microspheres. Hybridisation with probe detects 6.2 fmol/tube.



6/27

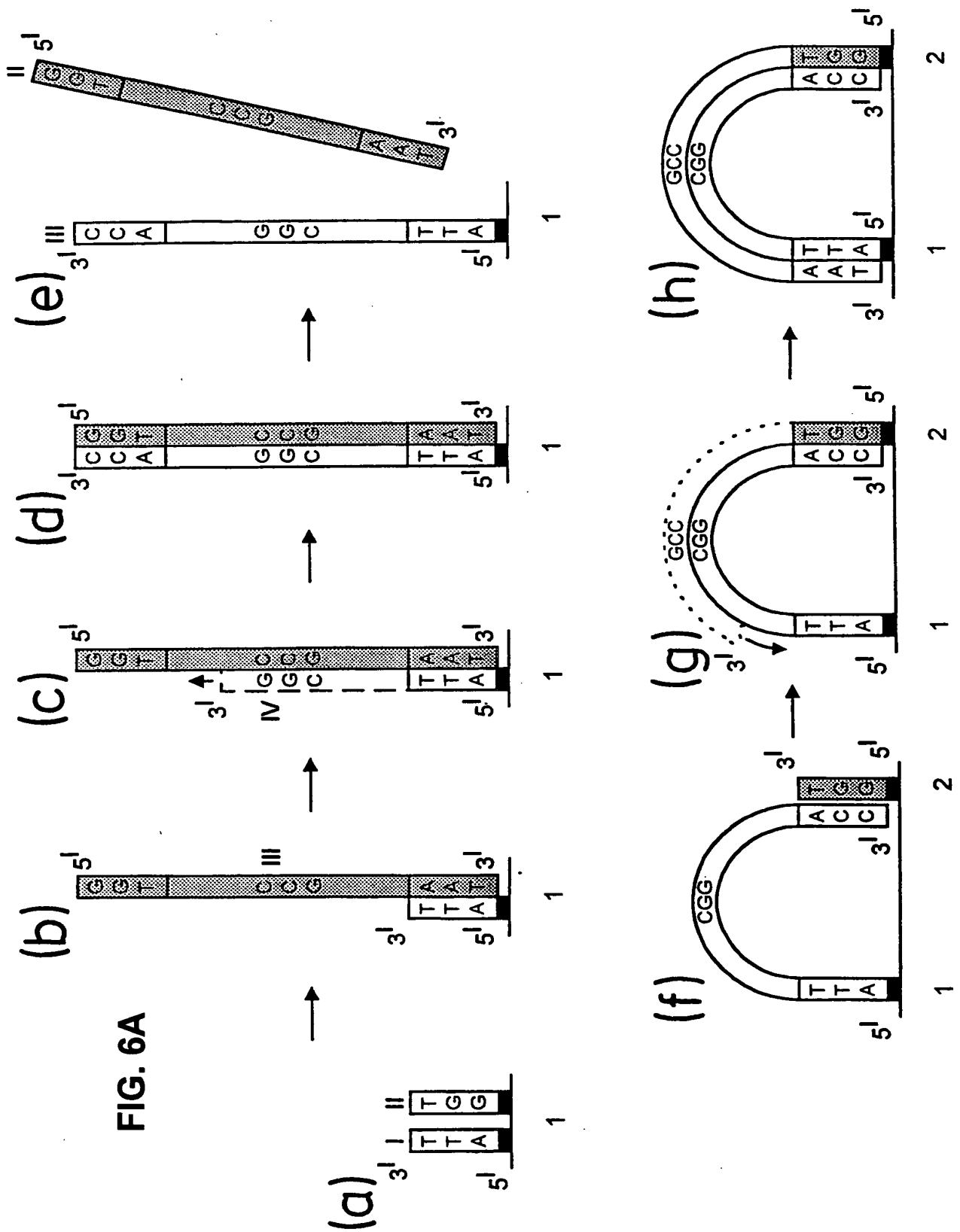
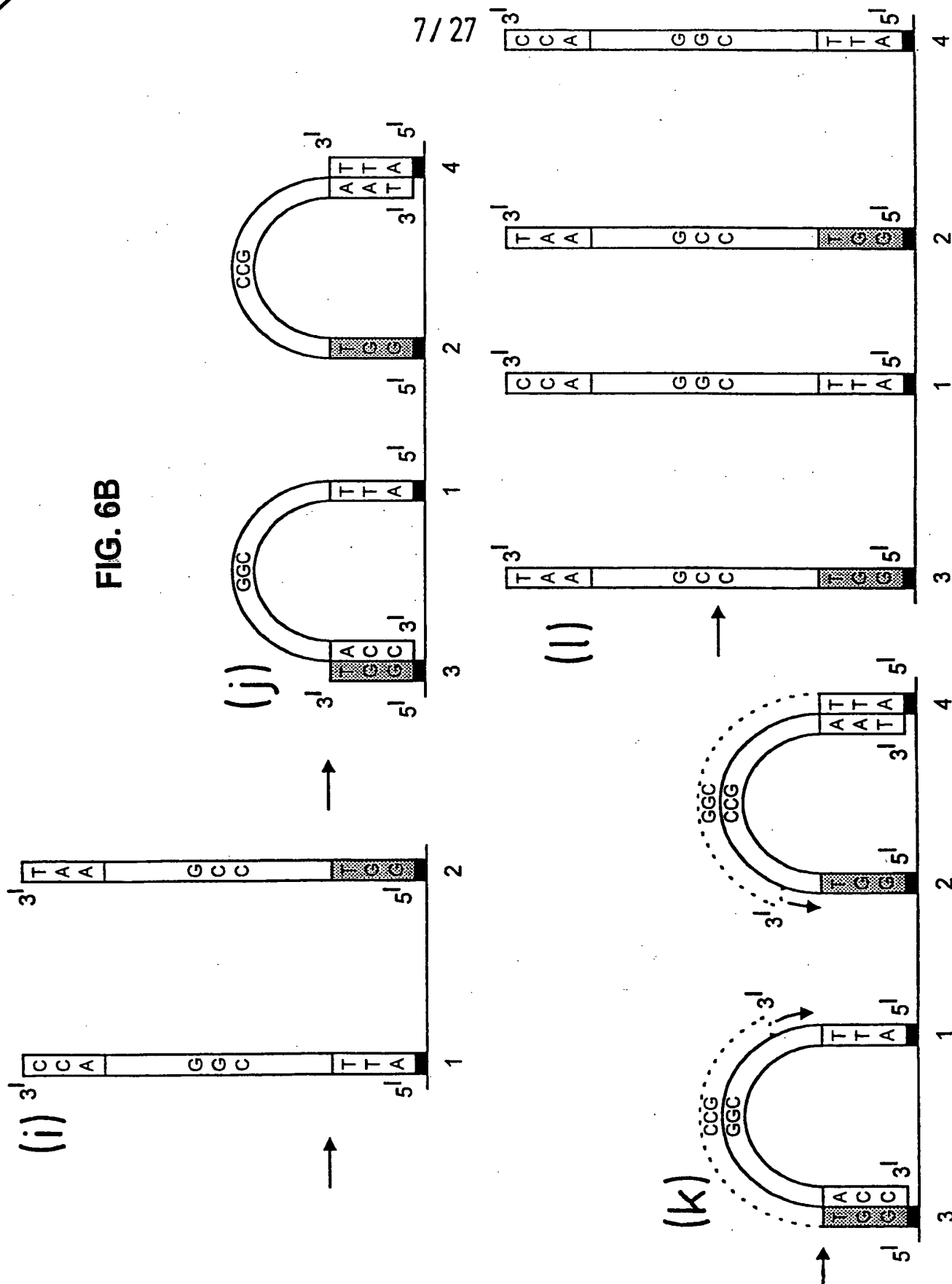


FIG. 6A



8/27

FIG. 7

DNA amplification - detection of colonies with DNA intercalating dyes

i) control



ii) with template

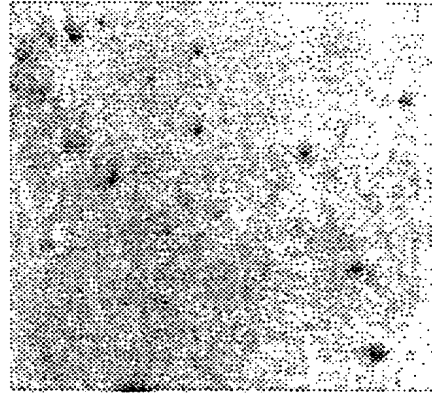
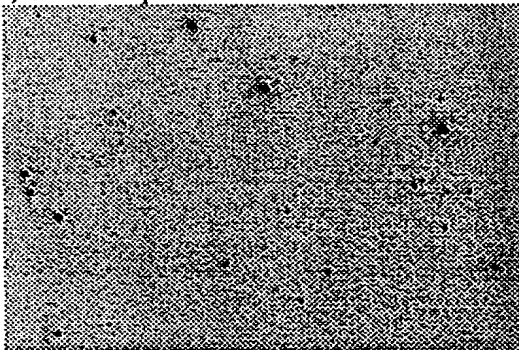


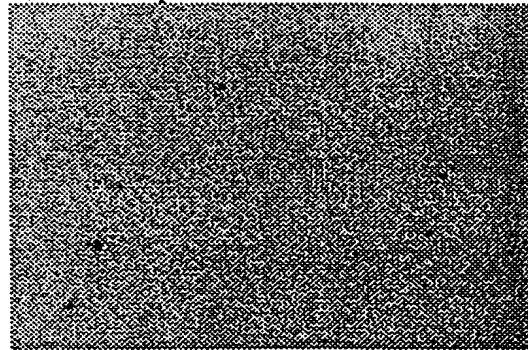
FIG. 8

DNA amplification; detection of colonies by specific probe hybridisation

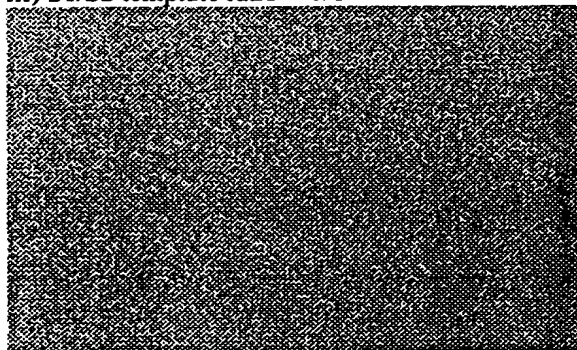
i) S1/S2 template ratio = 1/0



ii) S1/S2 template ratio = 1/10



iii) S1/S2 template ratio = 0/1



9 / 27

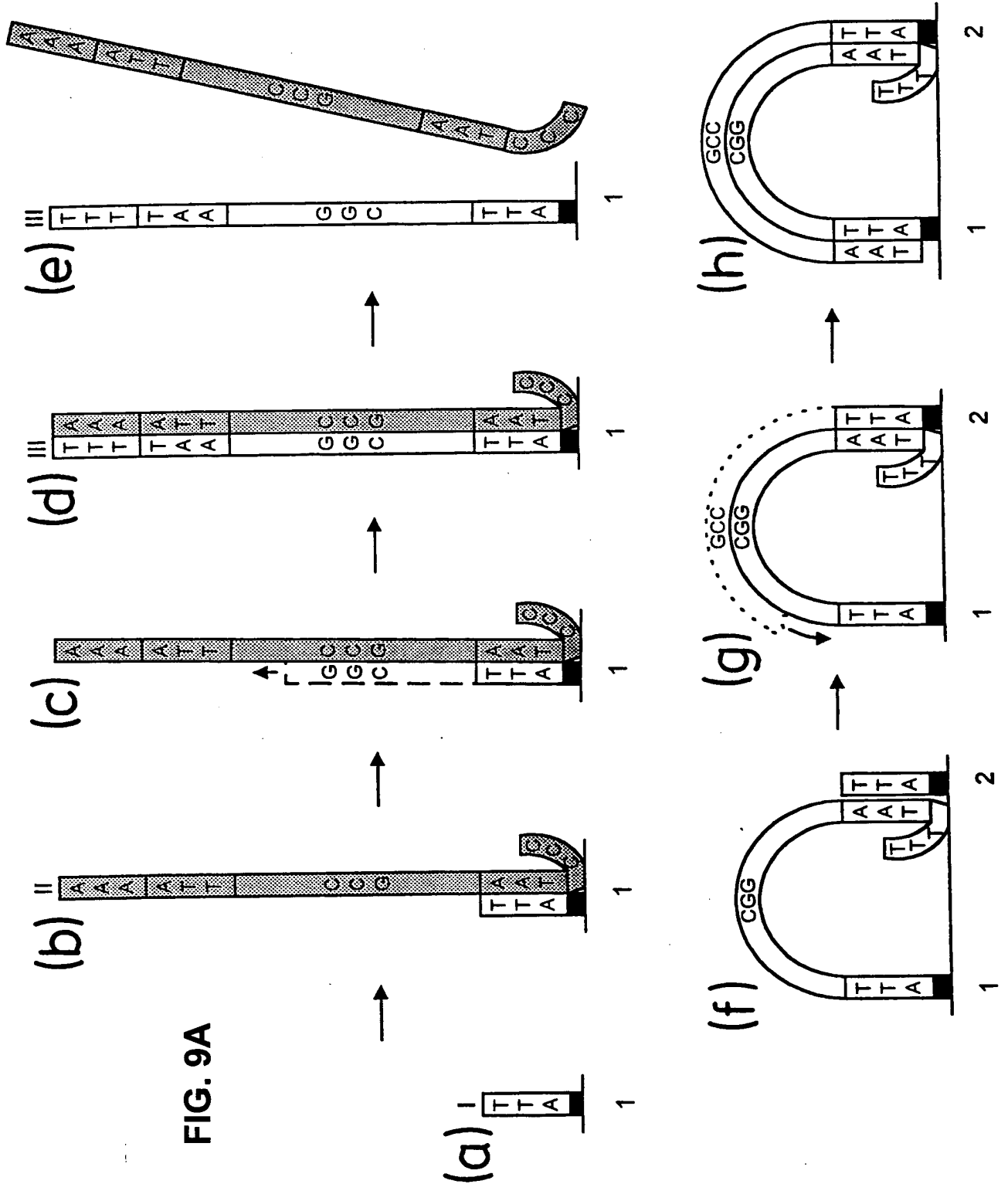
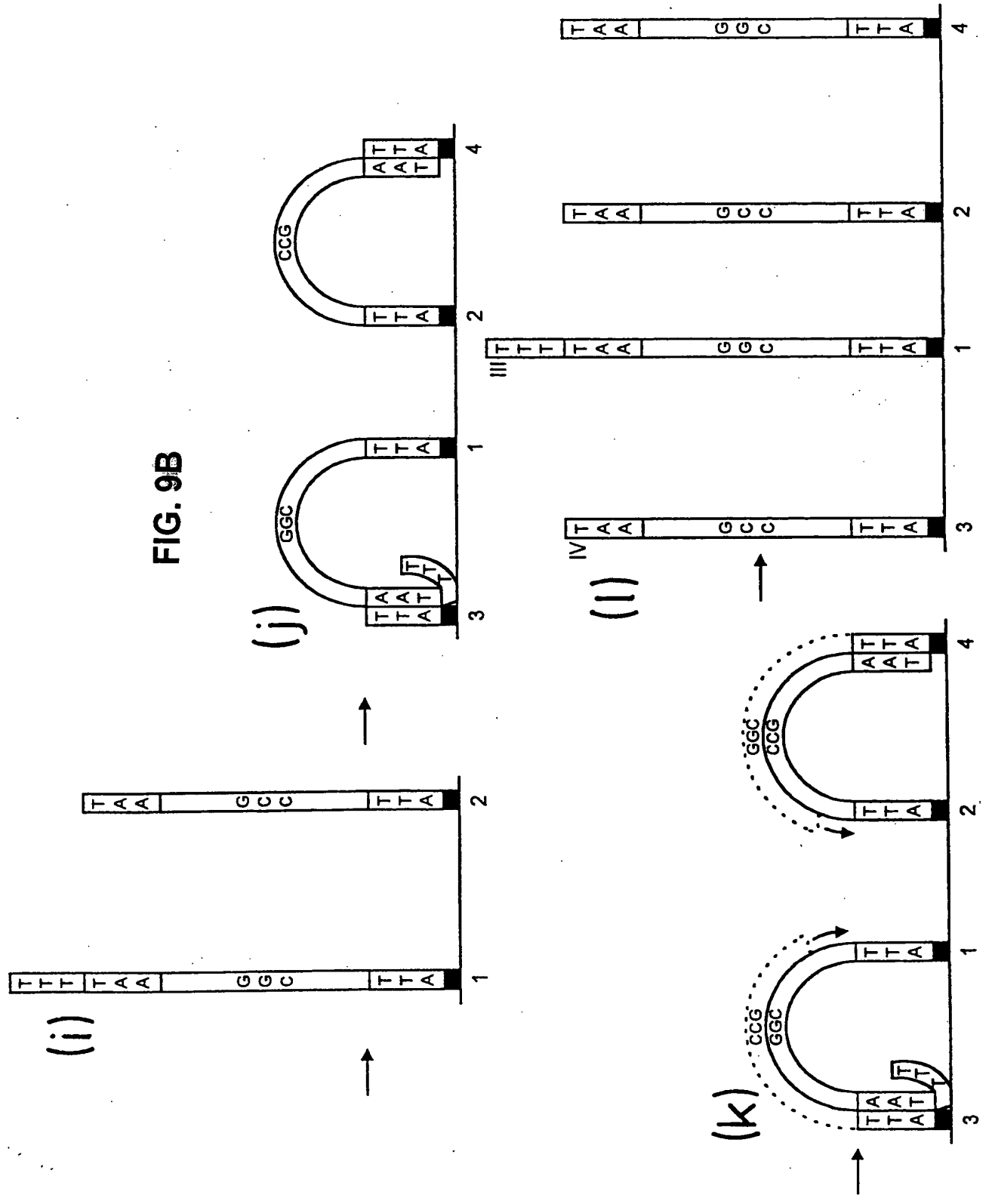


FIG. 9A

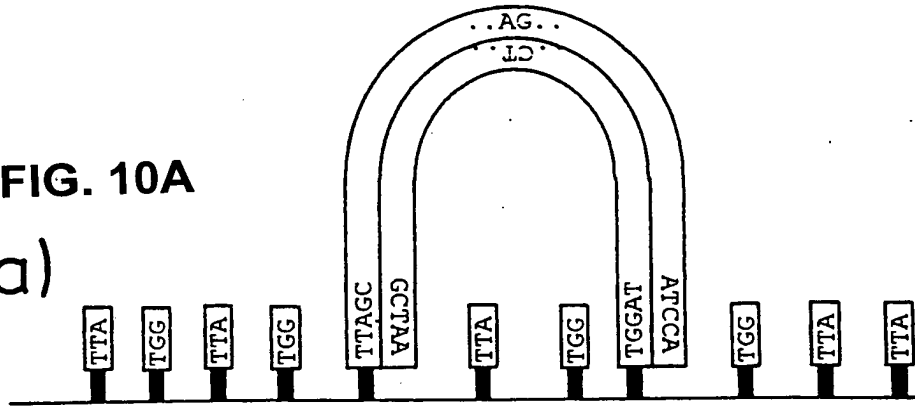
FIG. 9B



11 / 27

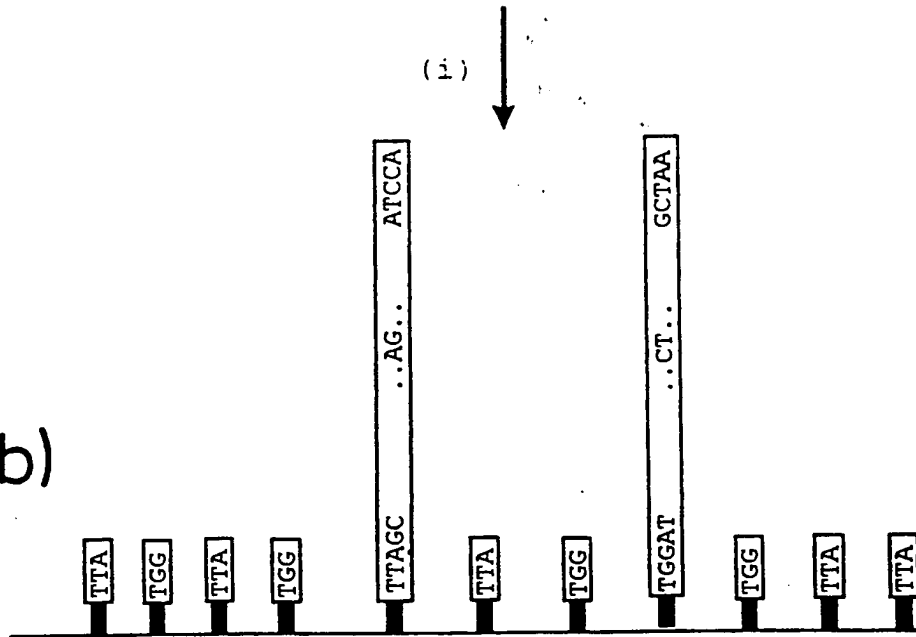
FIG. 10A

(a)



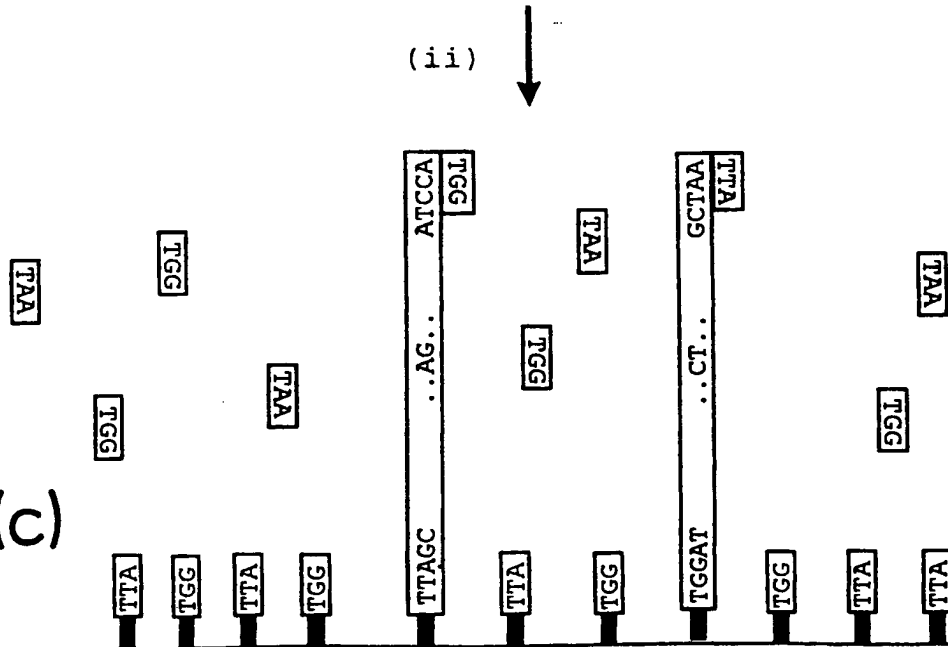
(i)

(b)



(ii)

(c)

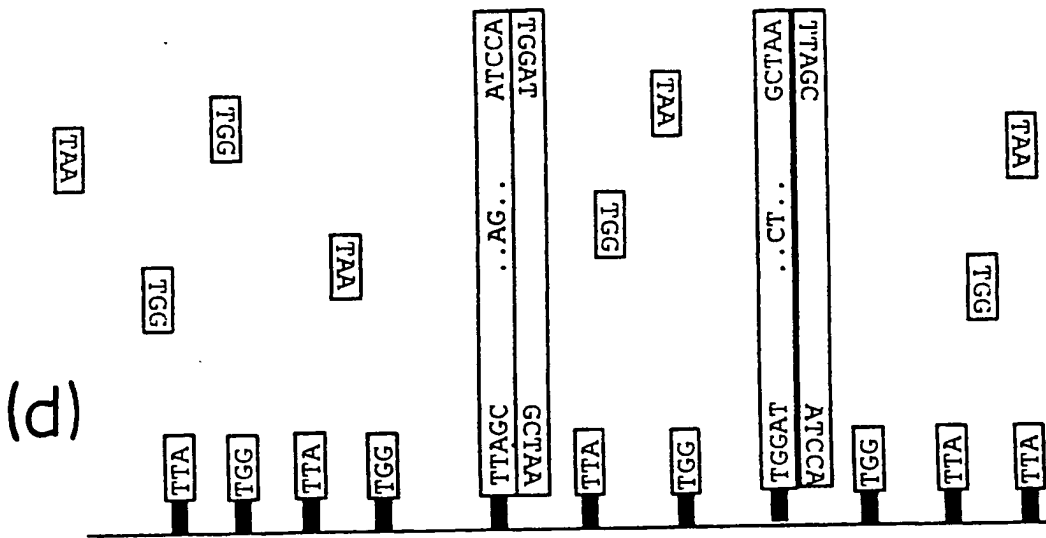


12 / 27

(iii)



FIG. 10B



(iv)

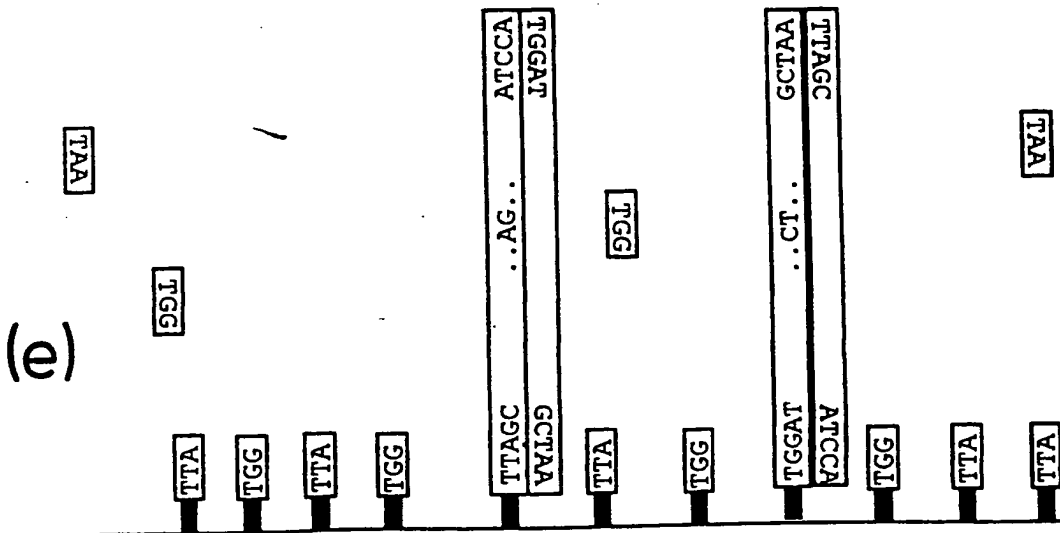
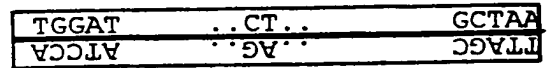
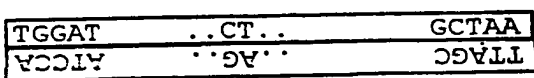
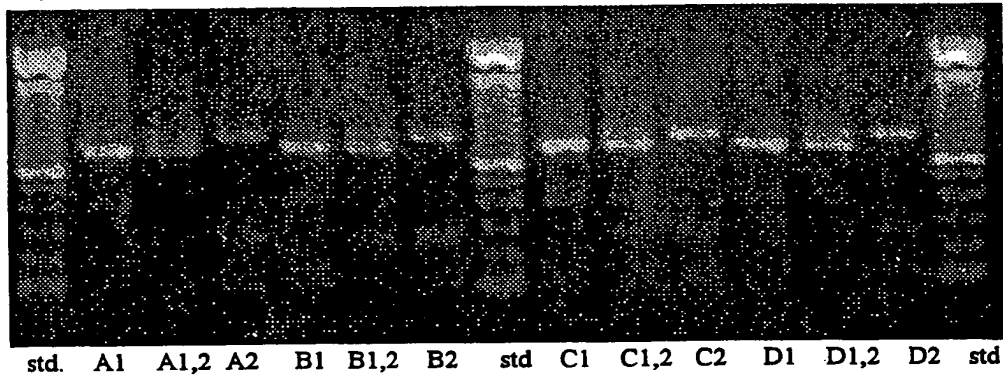


FIG. 11.

A)



B)

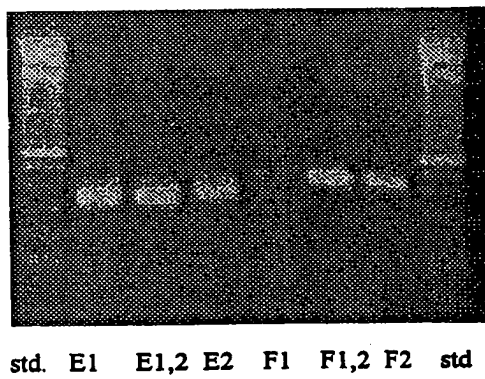
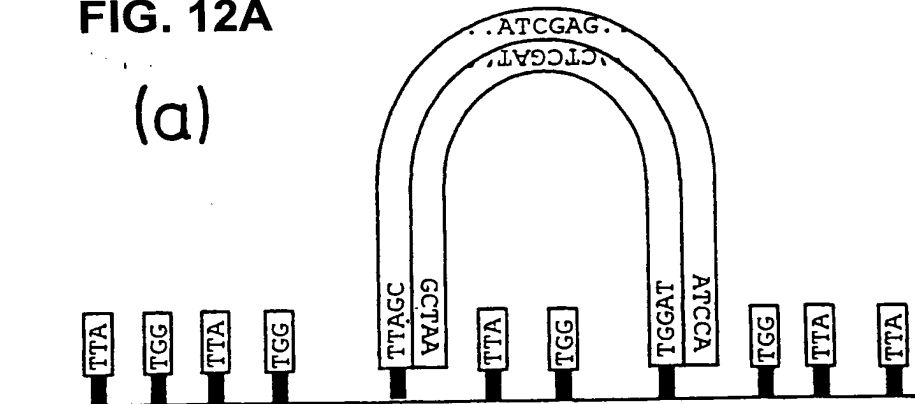


FIG. 12A

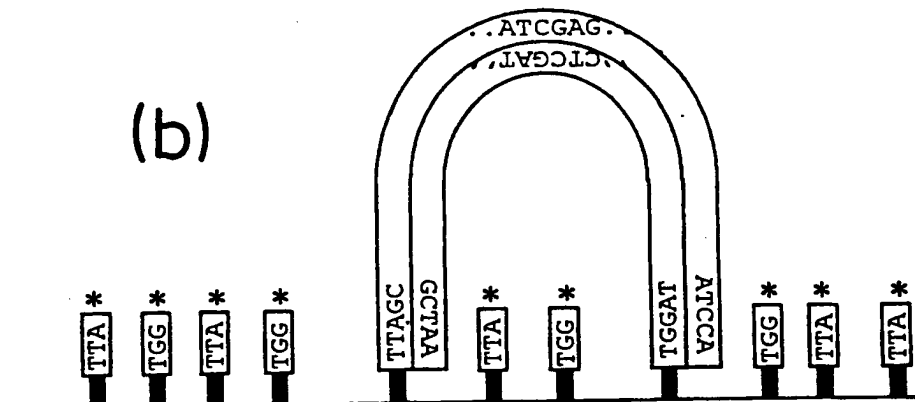
(a)



(i)



(b)



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FIG. 12B

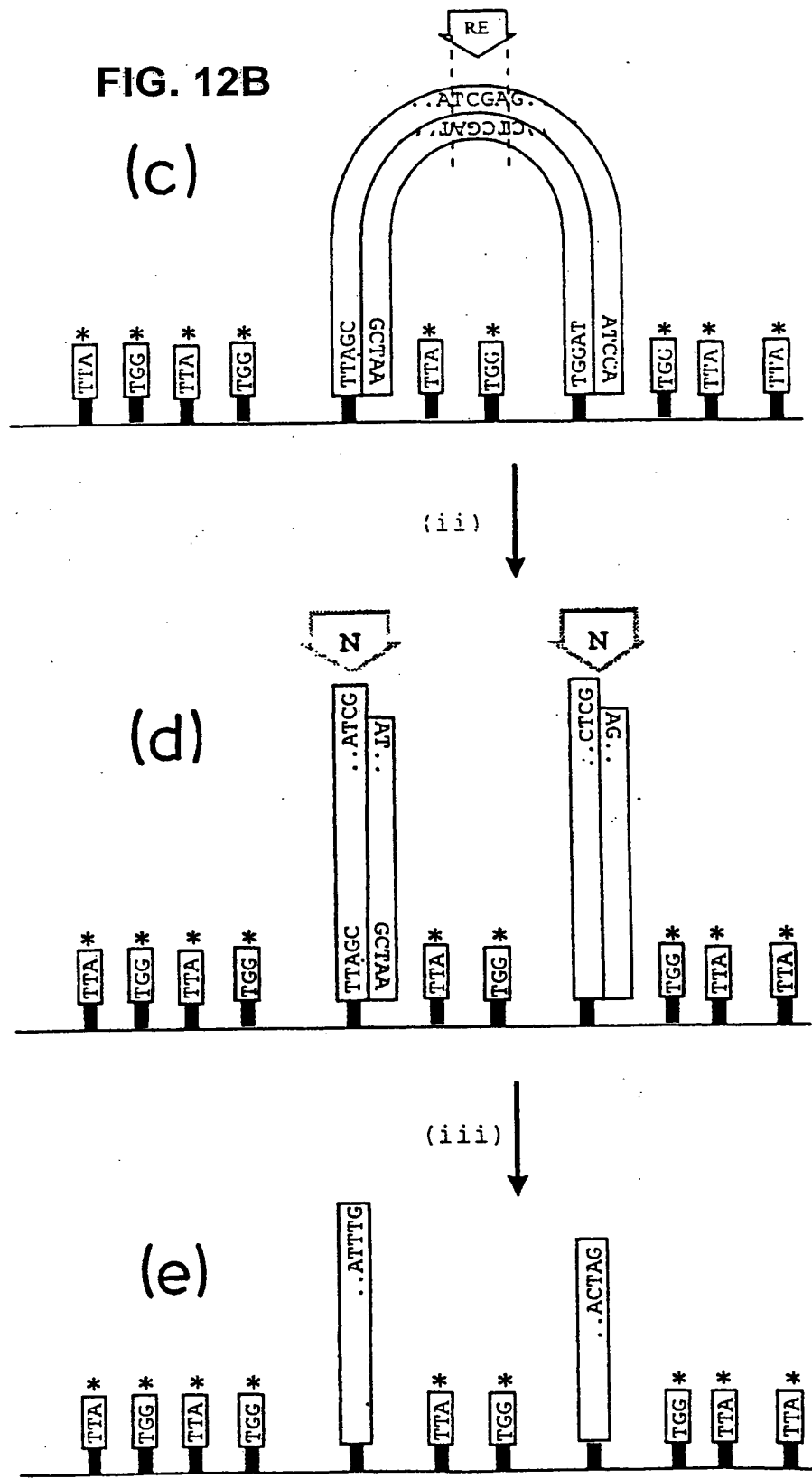
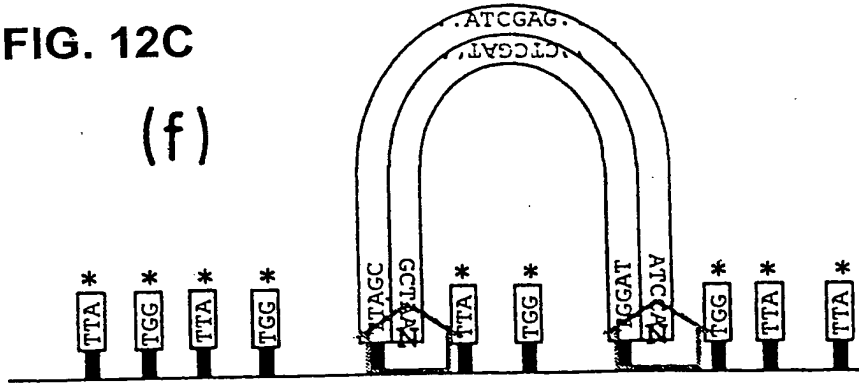


FIG. 12C

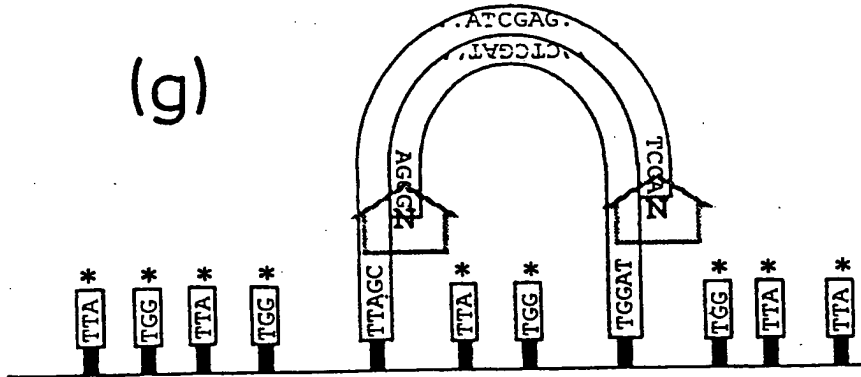
(f)



(iv)



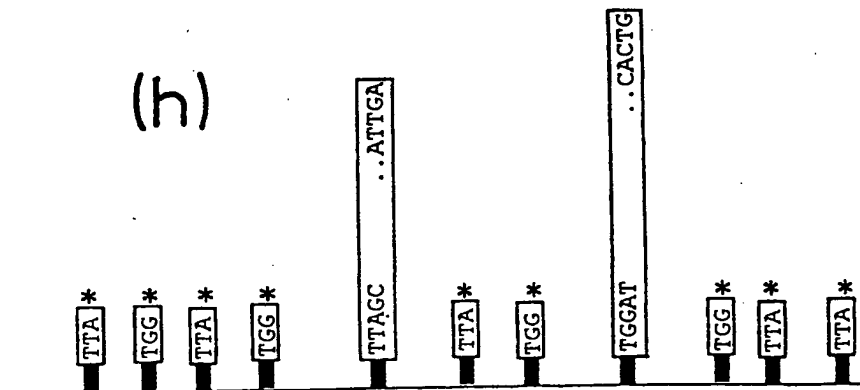
(g)



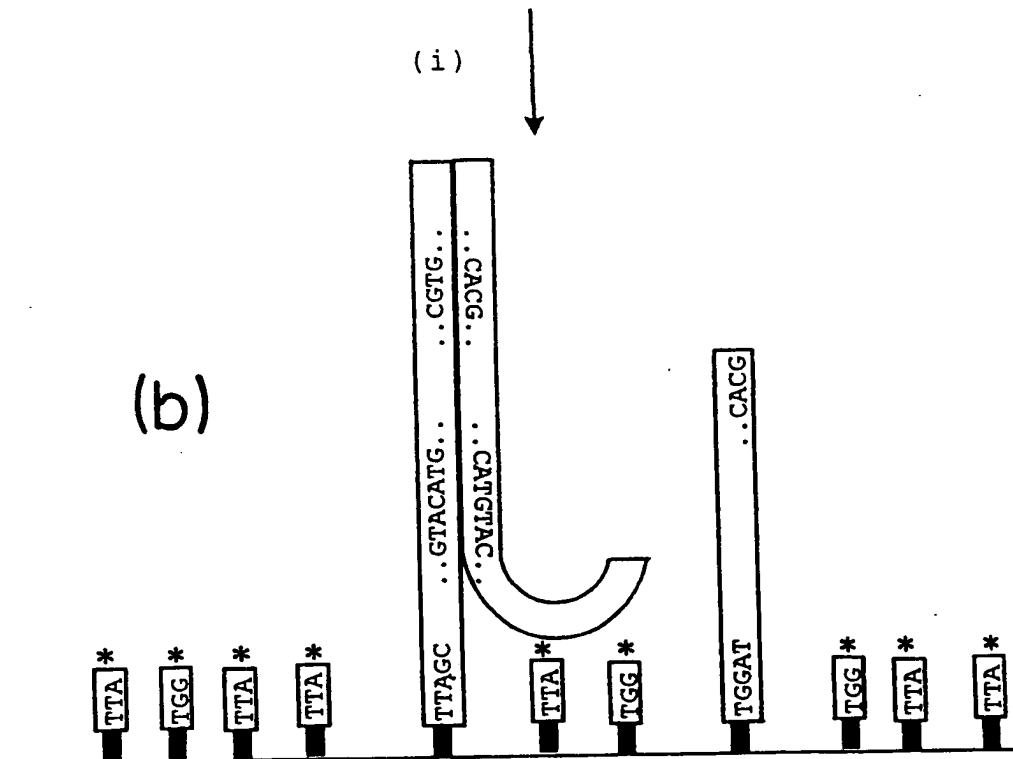
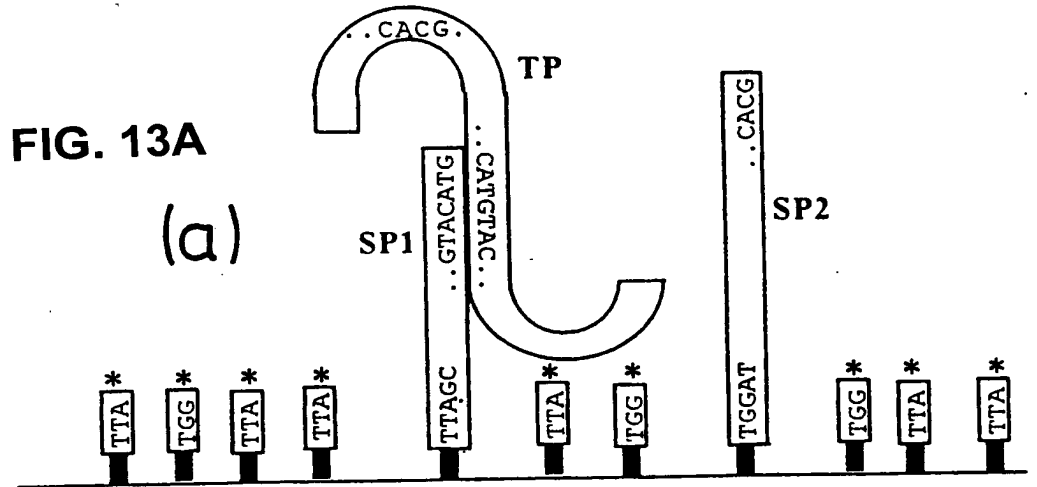
(v)



(h)

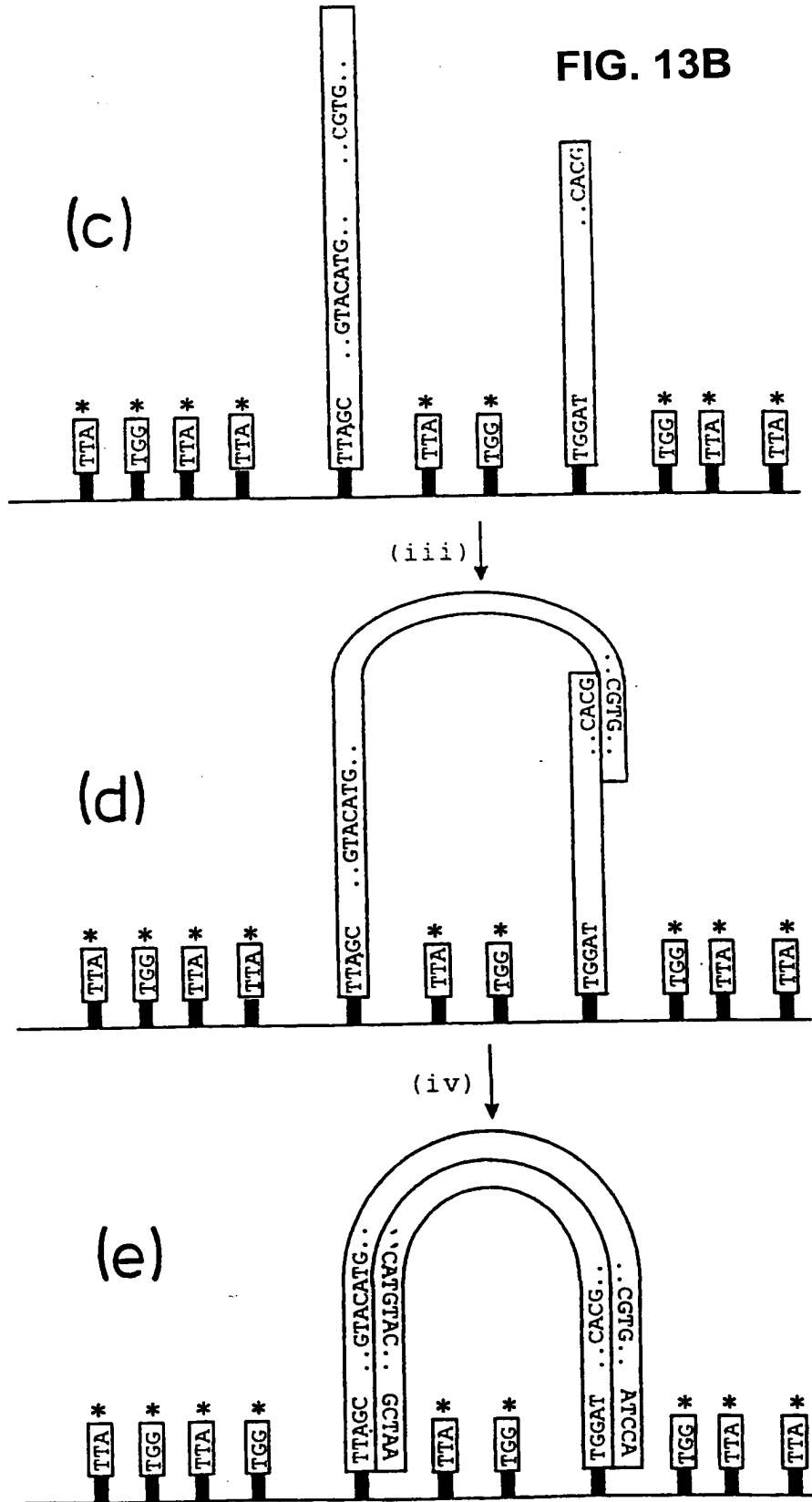


17/27



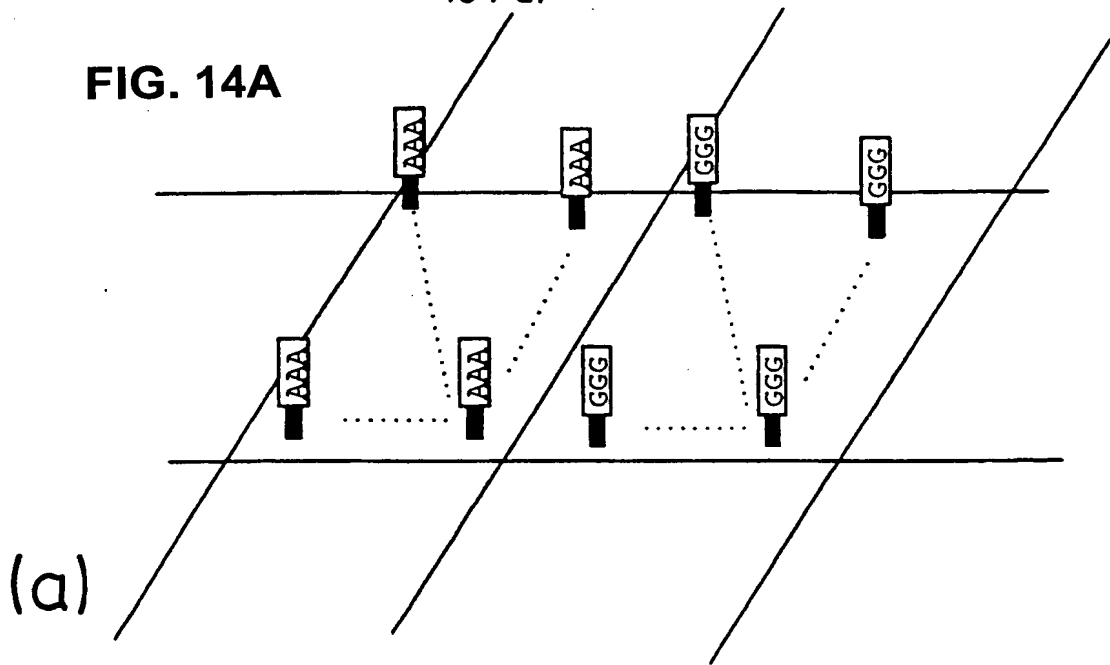
(ii)

FIG. 13B

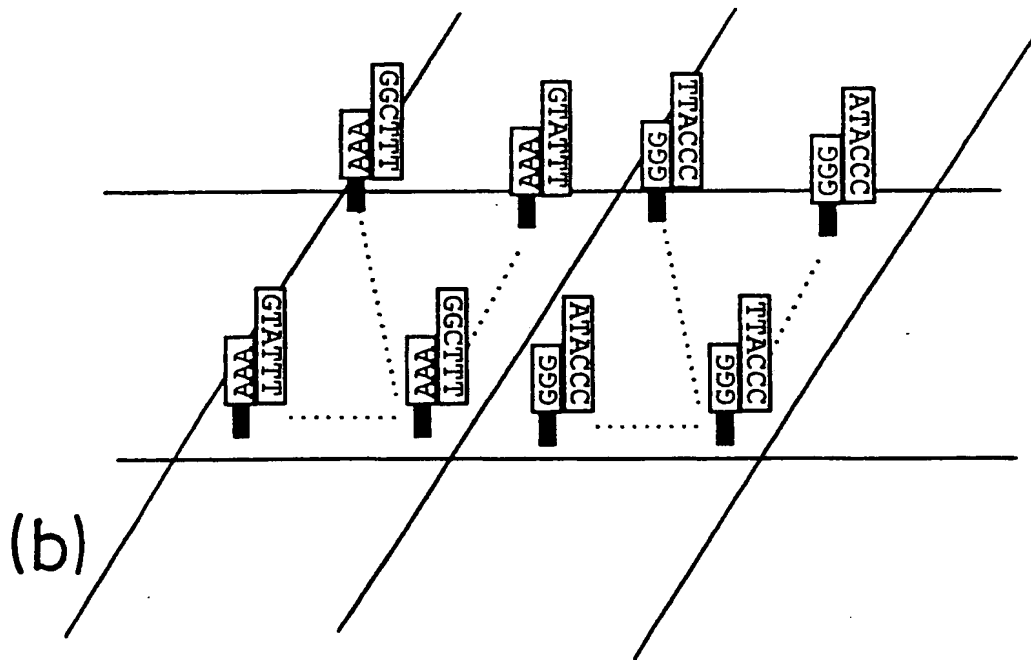


19 / 27

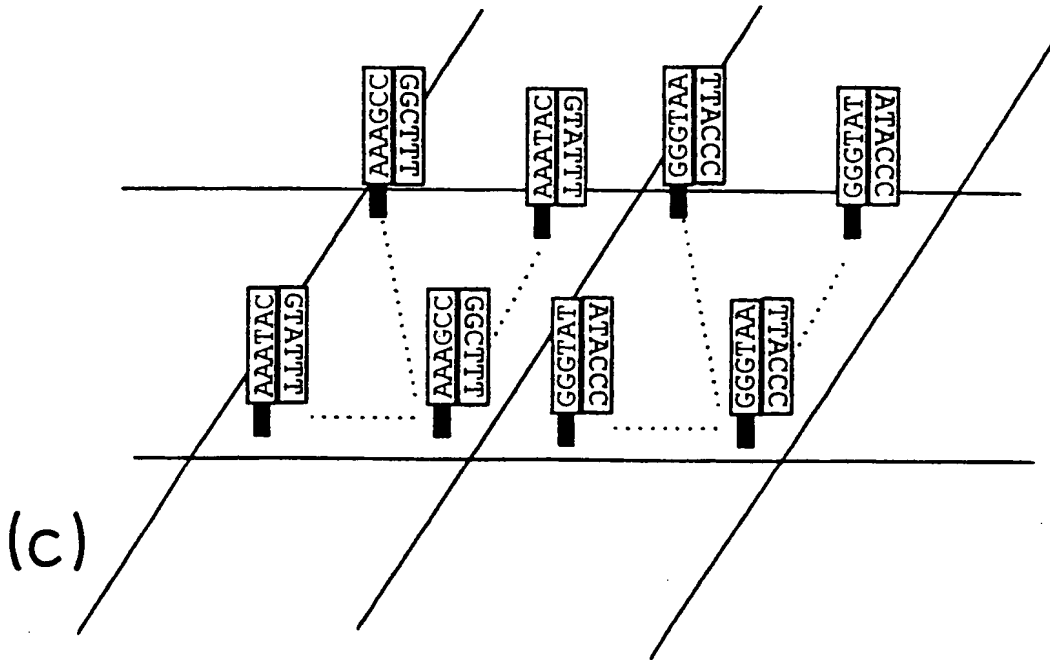
FIG. 14A



(i) ↓



(ii) ↓



(iii)

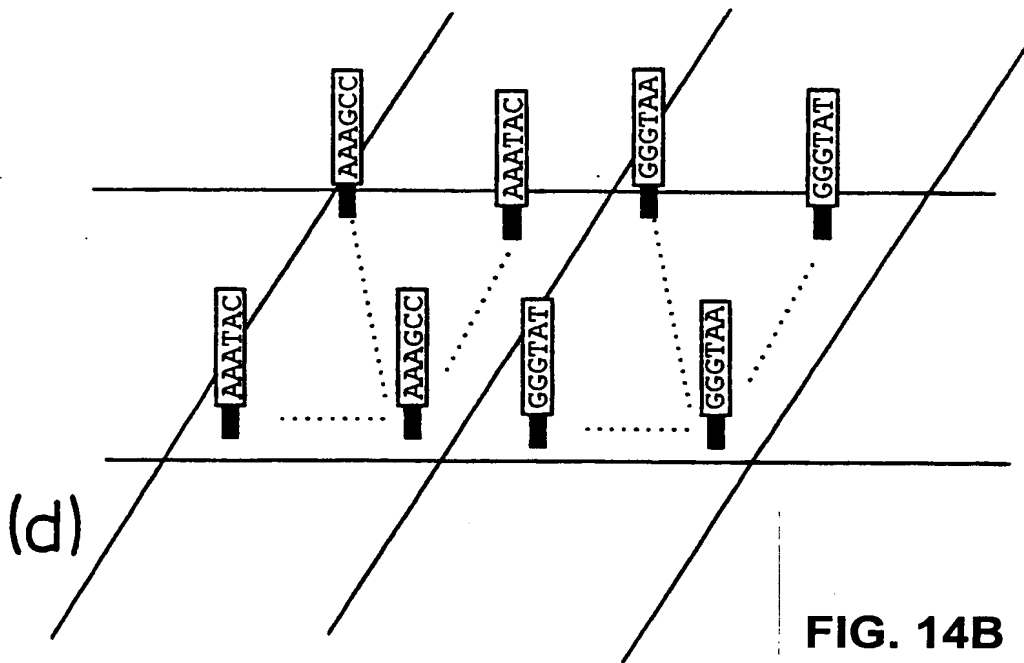


FIG. 14B

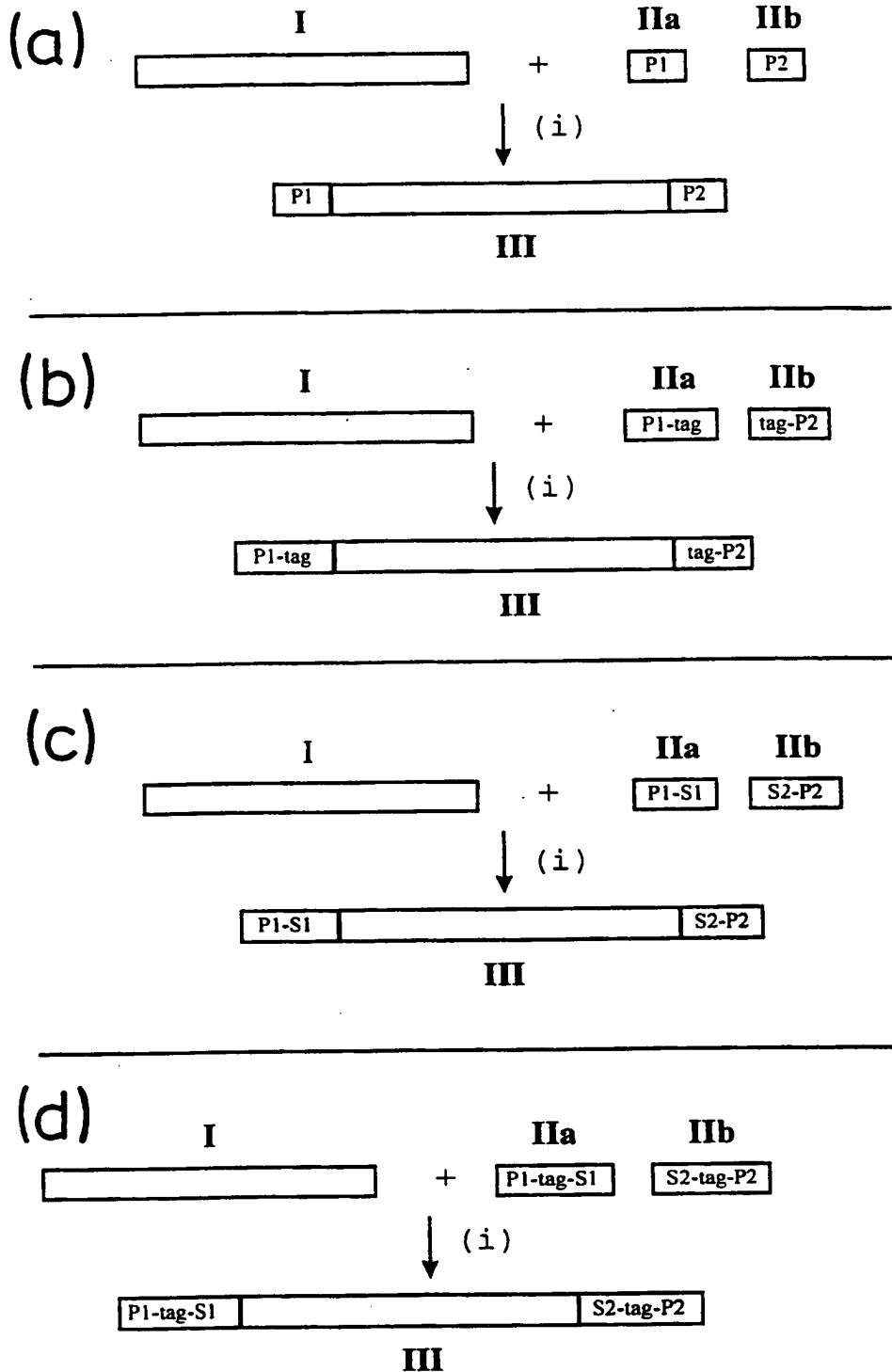


FIG. 15

22 / 27

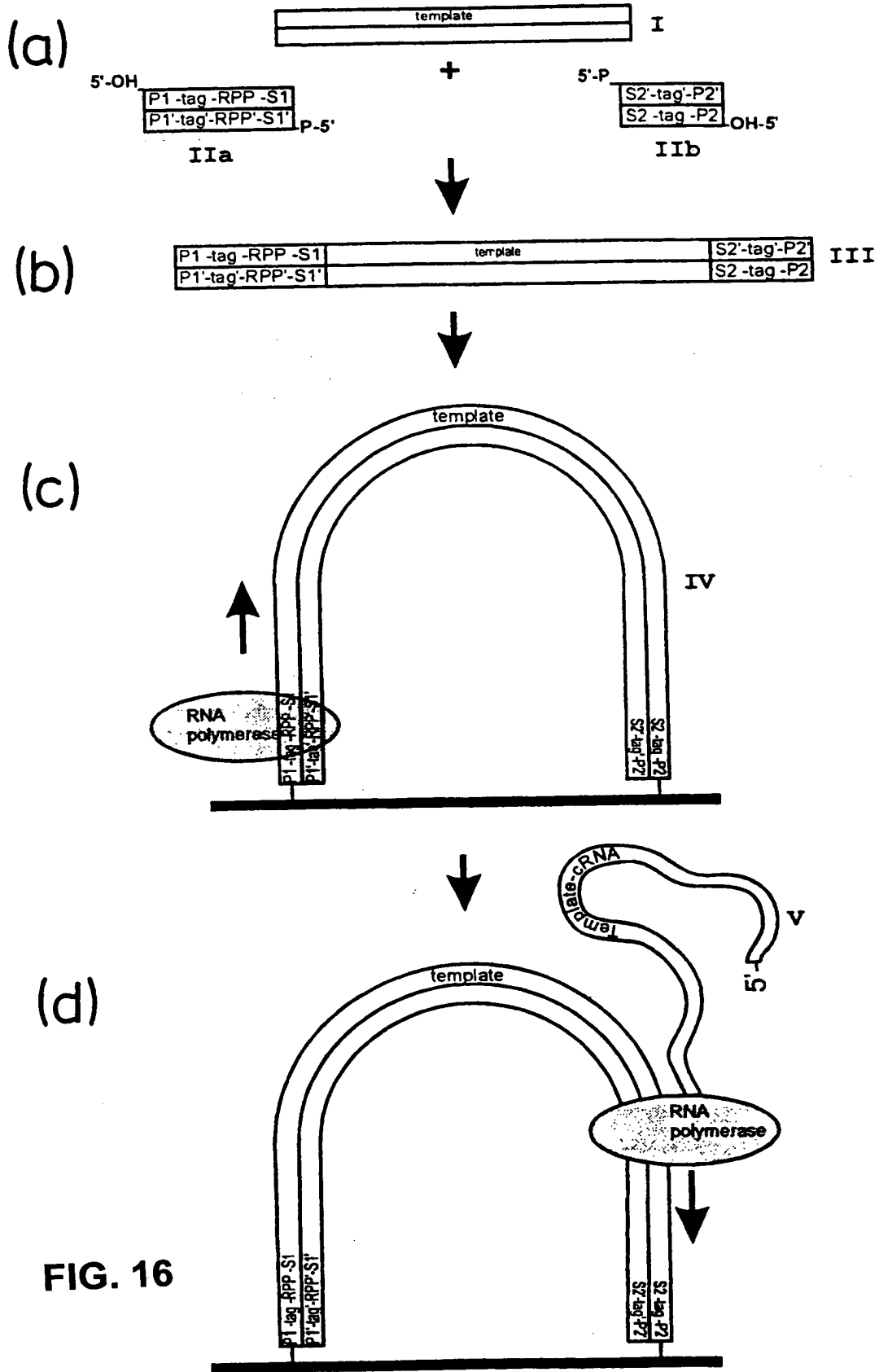
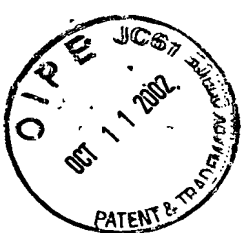


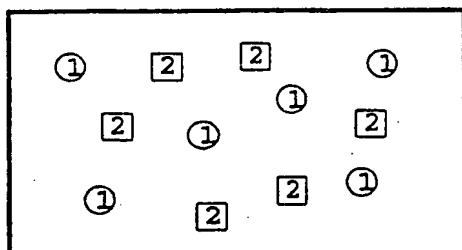
FIG. 16



23/27

FIG. 17
in situ Sequencing

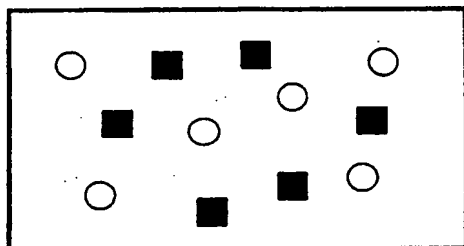
(a)



Two types of randomly arrayed DNA colonies

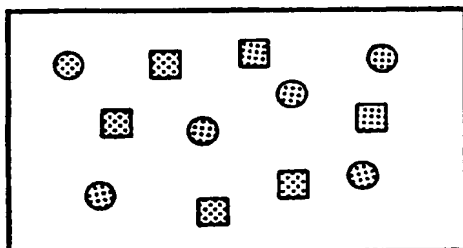
(b)

step 1
add dGTP



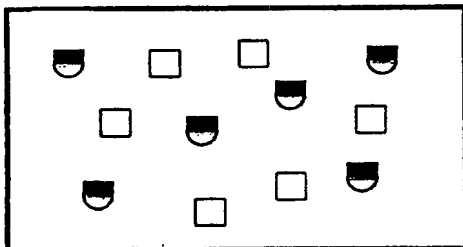
(c)

step 2
add dATP



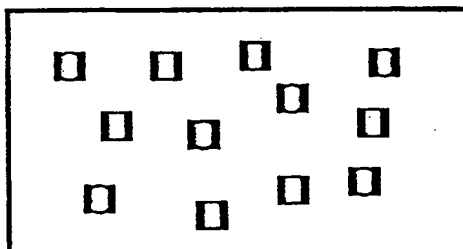
(d)

step 3
add dTTP

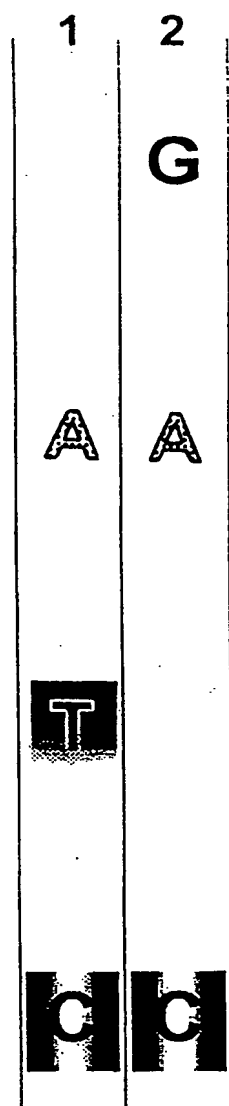


(e)

step 4
add dCTP



f)



DNA sequence:
type 1: ATC
type 2: GAC

24/27

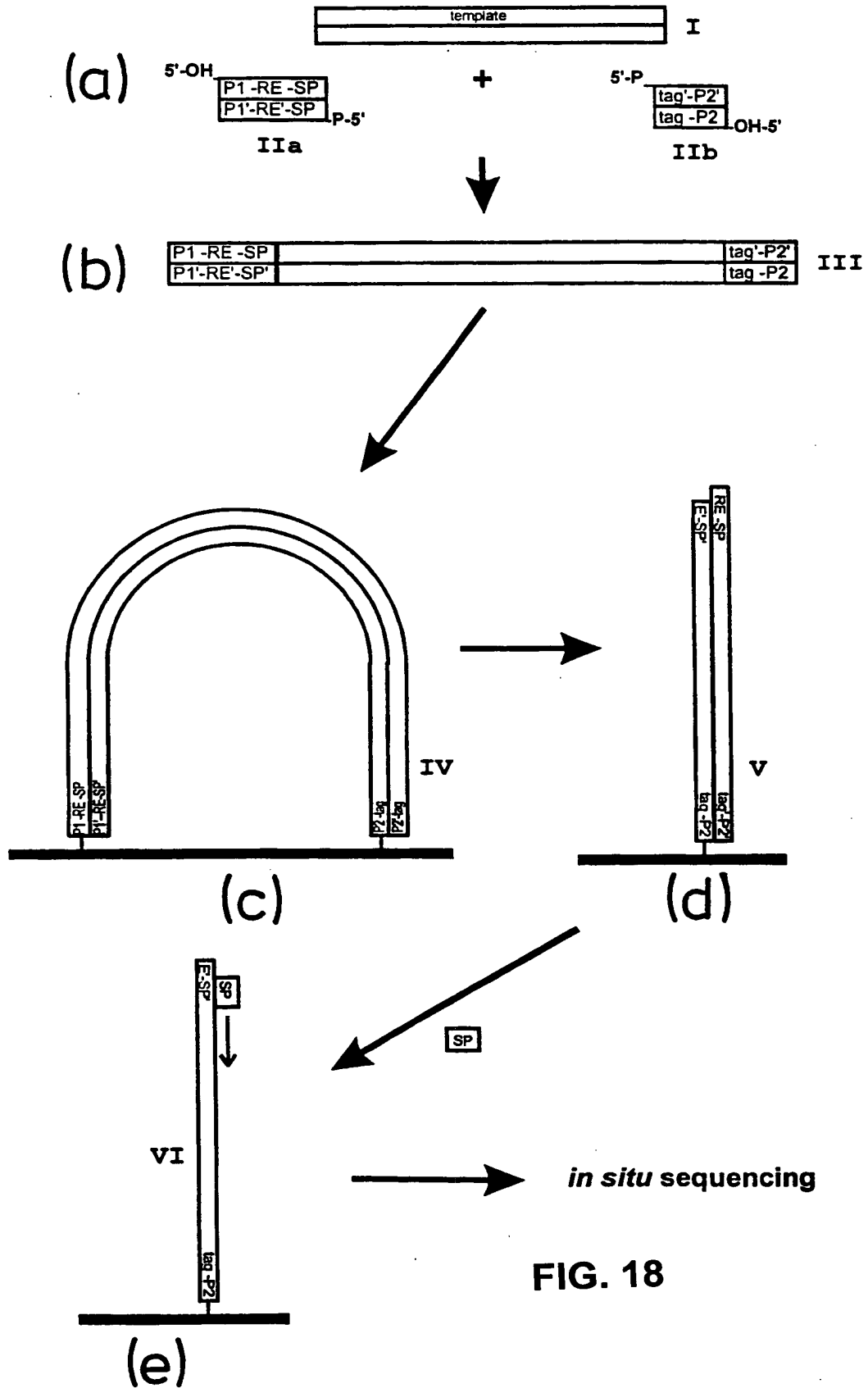
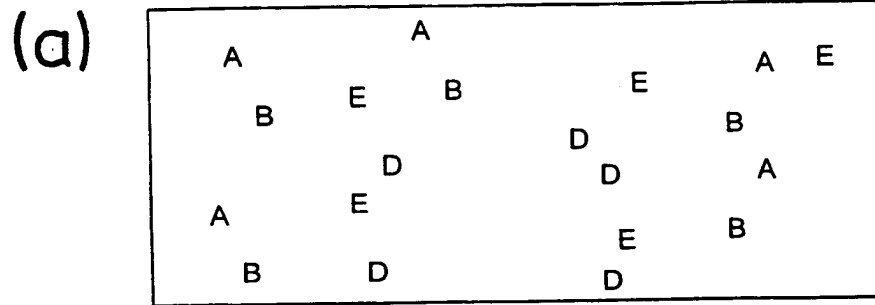
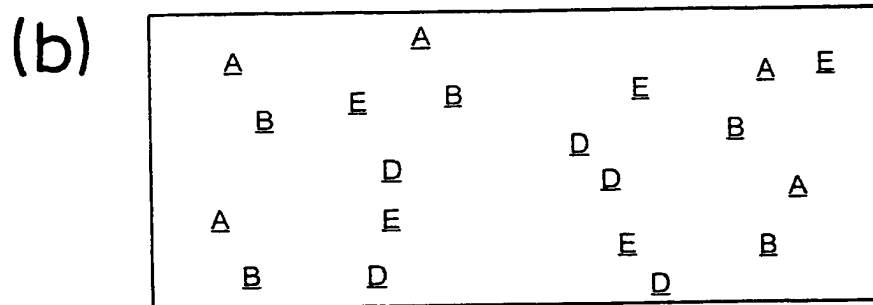


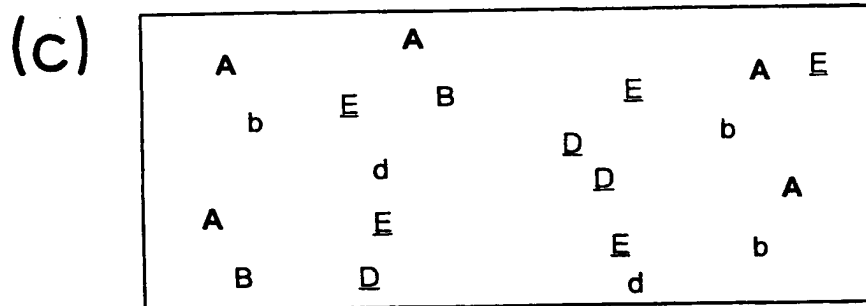
FIG. 18



↓ (i)



↓ (ii)



↓ (iii)

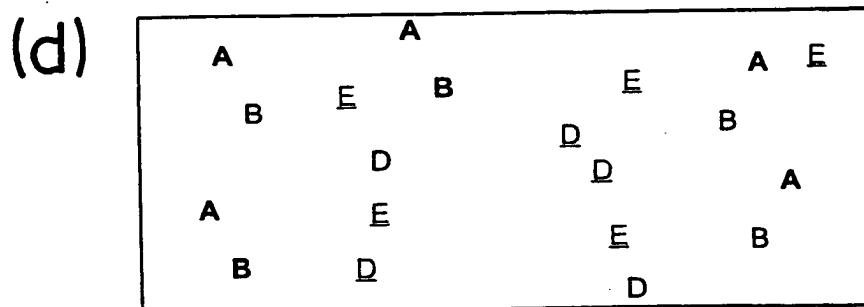
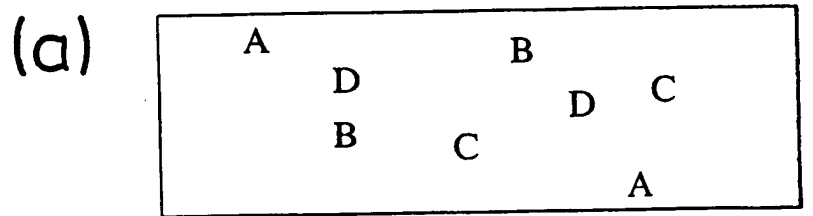
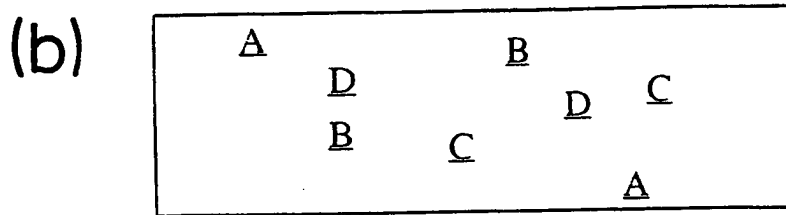


FIG. 19

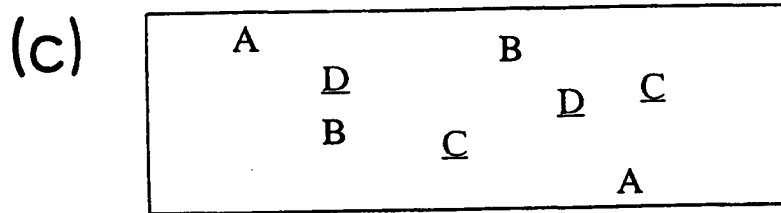
26 / 27



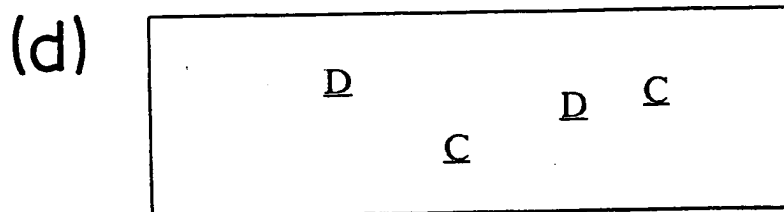
(i)



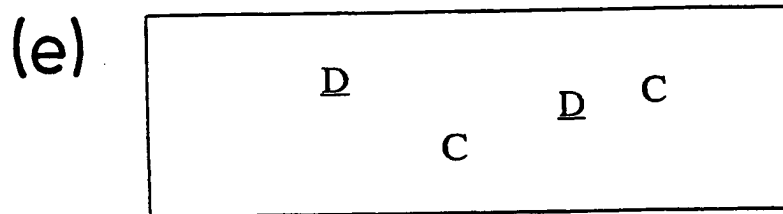
$mA + mB$ (ii)



R.E. (iii)



$mA +$ (iv)



P1 + (v)



FIG. 20

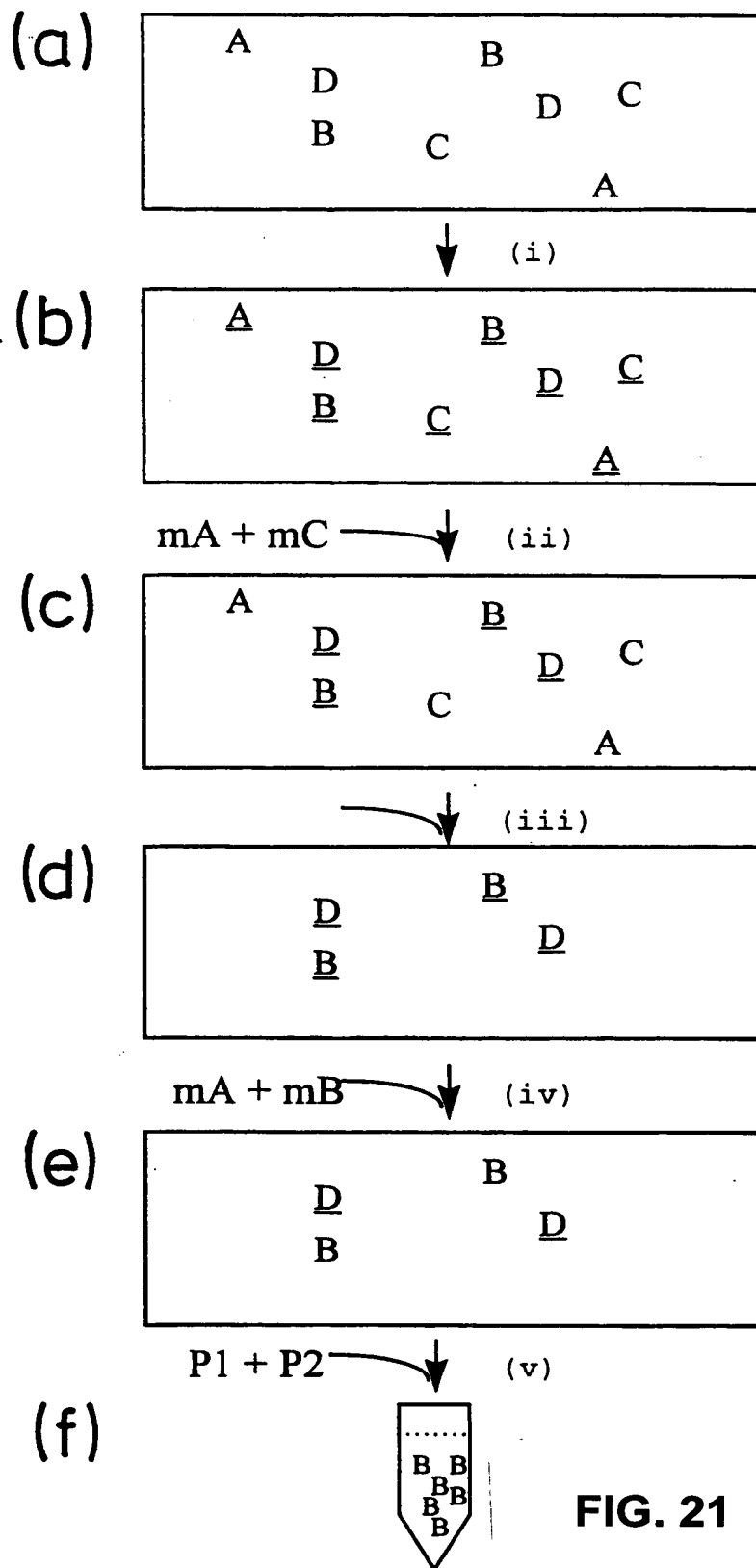


FIG. 21